IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An ~~Integrated~~ integrated optics filtering component comprising:

~~in~~ a substrate ~~(10)~~; and

~~at least one~~ a filtering unit ~~(17)~~ arranged in said substrate, said filtering unit comprising:

an optical guide core ~~(11)~~,

an optical cladding ~~(13)~~ independent of the core, and

at least two elementary zones of interaction ~~elementary~~ arranged in series ~~(Z1, Z2, Z3, Z4)~~, ~~in which~~ each of said at least two elementary ~~zone~~ zones of interaction ~~has~~ including ~~at least one~~ a structural parameter that is different from ~~that or those~~ a structural parameter of an adjacent elementary zone of interaction ~~to it~~, each of said at least two elementary ~~zone~~ zones of interaction ~~elementary being defined by a zone of the substrate comprising~~ including an elementary grating ~~(R1, R2, R3, R4) for coupling~~ configured to couple modes between the guide core and the optical cladding,

wherein at least one portion of the optical cladding ~~called the elementary cladding (G1,G2,G3) surrounding~~ surrounds a corresponding at least one portion of the optical guide core~~, called the elementary core~~, and

wherein a ~~the~~ refractive index of each of said at least one portion ~~elementary~~ of the optical cladding ~~being~~ is different from ~~the~~ a refractive index of the substrate and lower than ~~the~~ a refractive index of the corresponding at least one portion of the optical guide core at least in ~~the~~ a part of the ~~elementary~~ optical cladding ~~next to~~ that surrounds the ~~elementary~~ optical guide core~~, the different elementary gratings of a filtering unit forming a grating~~.

2. (Currently Amended) The ~~Component~~ component of claim 1, ~~characterised in that~~ wherein each ~~elementary~~ of said at least one portion of the optical cladding has a refractive index higher than that of the substrate.

3. (Currently Amended) The ~~Component~~ component of ~~any of claims 1 and 2~~ claim 1, ~~characterised in that~~ wherein the elementary grating of one said at least two

elementary zones ~~a zone~~ of interaction is formed in the guide core and/or in the cladding and/or in the substrate.

4. (Currently Amended) The ~~Component~~ component of ~~any of claims 1 to 3~~ claim 1, ~~characterised in that~~ wherein each elementary zone of interaction ~~has at least one structural parameter different from that or those to which it is adjacent, in which each zone of interaction~~ is differentiated from another zone of interaction by at least one characteristic selected from a group consisting of a coupling efficiency of the elementary grating corresponding to this zone, a central ~~wave length~~ coupling wavelength ~~for coupling~~ of ~~this~~ the elementary grating and/or a coupling phase of the elementary grating.

5. (Currently Amended) The ~~Component~~ component of ~~any of claims 1 to 4~~ claim 1, ~~characterised in that for~~ wherein in each zone of interaction, the structural ~~parameters~~ parameter ~~are~~ is selected from a group consisting of at least ~~the following~~:

- ~~the~~ a length L of the elementary grating,
- ~~the~~ a period $\Lambda$ of the elementary grating,
- ~~the~~ a profile of the elementary grating,
- ~~the~~ a position of the elementary grating in the zone of interaction,
- ~~$\Delta$n the~~ an amplitude $\Delta$n of ~~the~~ an effective index modulation induced by the elementary grating,
- ~~$\phi$ the~~ a phase $\phi$ of the elementary grating,
- ~~the~~ dimensions of the ~~elementary~~ at least one portion of the optical cladding ,
- ~~the~~ dimensions of the ~~elementary~~ at least one portion of the optical guide core,
- ~~the~~ a value of the refractive index of the ~~elementary~~ at least one portion of the optical cladding ,
- ~~the~~ a value of the index of the ~~elementary~~ at least one portion of the optical guide core,
- ~~the~~ a position of the ~~elementary~~ at least one portion of the optical cladding in the substrate, and
- ~~the~~ a position of the at least one portion of the optical guide core ~~elementary~~ in the cladding.

6. (Currently Amended) The ~~Component~~ component of ~~any of claims 1 to 5~~ claim 1, ~~characterised in that~~ wherein ~~the~~ a grating including the elementary grating of each zone of interaction has a profile that is constant in period and/or amplitude.

7. (Currently Amended) The ~~Component~~ component of claim 6, ~~characterised in that~~ wherein each of said at least one portion ~~elementary~~ of the optical cladding of a filtering unit has a section in a plane perpendicular to the direction of propagation of a light wave and/or a ~~is centred~~ centering with respect to the corresponding at least one portion of the optical guide ~~elementary~~ core of the zone of interaction~~,~~ different from those of a remaining of said at least one portion ~~the other elementary~~ claddings of ~~the~~ said filtering unit.

8. (Currently Amended) The ~~Component~~ component of claim 6 ~~or 7~~, ~~characterised in that~~ wherein each ~~elementary~~ corresponding at least one portion of the optical guide core of a filtering unit has a section in a plane that is perpendicular to ~~the~~ a direction of propagation of a light wave and/or a ~~centred~~ centering with respect to the ~~elementary~~ at least one portion of the optical cladding of ~~the~~ a corresponding zone of interaction~~,~~ different to those of the other elementary cores of the said unit.

9. (Currently Amended) The ~~Component~~ component of ~~any of claims 6 to 9~~ claim 6, ~~characterised in that~~ wherein ~~the~~ a function defined by ~~the~~ elementary gratings of said at least two elementary zones of ~~a~~ the filtering unit comprises phase changes.

10. (Currently Amended) The ~~Component~~ component of claim 9, ~~characterised in that~~ wherein the phase changes are ~~formed~~ produced between each elementary grating by an offset corresponding to a change in value of ~~the~~ a function phase created by the profile of the elementary grating.

11. (Currently Amended) The ~~Component~~ component of ~~any of the previous claims~~ claim 1, ~~characterised in that~~ wherein the filtering unit ~~of the invention~~ comprises a dissipating element configured to dissipate all or part of the cladding modes and arranged between two consecutive elementary claddings or between two consecutive groups of elementary claddings~~, a dissipating element for all or part of the cladding modes~~.

12. (Currently Amended) The ~~Component~~ component of claim 11, ~~characterised in that this~~ the dissipating element is created by a reduction in section between two elementary claddings.

13. (Currently Amended) The ~~Component~~ component of claim 11, ~~characterised in that this~~ wherein the dissipating element ~~is created by~~ includes an intermediate cladding, positioned between two elementary claddings, ~~the~~ a section of the intermediate cladding being smaller than at least one of the sections of the two elementary claddings.

14. (Currently Amended) The ~~Component~~ component of claim 11, ~~characterised in that this~~ wherein the dissipating element is created ~~by~~ in a zone of the substrate positioned between two elementary claddings.

15. (Currently Amended) The ~~Component~~ component of ~~any of the previous claims~~ claim 1, ~~characterised in that~~ wherein a sampling element is optically connected to the cladding of the filtering unit.

16. (Currently Amended) The ~~Component~~ component of ~~any of the previous claims~~ claim 1, ~~characterised in that it comprises~~ comprising ~~several~~ at least two filtering units.

17. (Currently Amended) The ~~Component~~ component of ~~any of the previous claims~~ claim 1, ~~characterised in that~~ wherein the filtering unit ~~creates~~ is a gain flattening filter.

18. (Currently Amended) A ~~Fabrication~~ method of manufacturing an integrated optics component comprising:

providing a substrate; and

modifying a refractive index of said substrate to create a filtering unit that comprises an optical guide core, an optical cladding independent of the core, and at least two elementary zones of interaction arranged in series, each of said at least two elementary zones of interaction including a structural parameter that is different from a structural parameter of an adjacent elementary zone of interaction, each of said at least two elementary zones of

interaction including an elementary grating configured to couple modes between the guide core and the optical cladding,

~~in a substrate at least one filtering unit (17) of any of the previous claims, characterised in that the core (11) and the cladding (13) of each filtering unit are respectively created by a modification of the refractive index of the substrate so that~~ wherein said refractive index is modified such that at least in ~~the~~ part of the optical cladding next to the optical guide core and at least in the zone of interaction, ~~the~~ a refractive index of the optical cladding is different from the refractive index of the substrate and lower than ~~the~~ a refractive index of the core, and

wherein ~~in that the~~ a grating including elementary gratings of the filtering unit is created by a modification of the effective index of the substrate.

19. (Currently Amended) The ~~Fabrication~~ method of claim 18, ~~characterised in that the modification of the refractive index of the substrate is obtained by radiation and/or by the introduction~~ wherein said modifying includes irradiating said substrate and/or exposing said substrate to of ionic species

20. (Currently Amended) The ~~Fabrication~~ method of claim 19, ~~characterised in that it comprises the following steps~~ wherein said modifying comprises:

- a) ~~introduction of~~ exposing the substrate to a first ionic species ~~in the substrate so as to permit the optical cladding to be obtained after step c)~~,
- b) ~~introduction of~~ exposing the substrate to a second ionic species ~~in the substrate so as to permit the guide core to be obtained after step c)~~,
- c) burying ~~of the ions introduced in steps a) and b)~~ said first and second ionic species so as to obtain the cladding and the guide core,
- d) ~~formation of~~ forming the grating.

21. (Currently Amended) The ~~Fabrication~~ method of claim 20, ~~characterised in that~~ wherein the first and/or the second ionic species are introduced by an ionic exchange or by ionic implantation.

22. (Currently Amended) The ~~Fabrication~~ method of claim 20 ~~or 21~~, ~~characterised in that~~ wherein the substrate ~~is made of~~ includes glass and contains $Na^+$ ions, the first and the second ionic species ~~are~~ including $Ag^+$ and/or $K^+$ ions.

23. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 20 ~~to~~ ~~22~~, ~~characterised in that step a)~~ further comprising:

~~comprises the creation of~~ defining a first mask ~~(61)~~ on said substrate prior to exposing the substrate to the first ionic species, the first mask comprising a pattern ~~capable of creating~~ configured to define the cladding, ~~in which the introduction of~~ the first ionic species ~~is carried out~~ being introduced through ~~this~~ said first mask ~~and step b) comprises the elimination~~

removing ~~of~~ the first mask, and ~~the creation of~~

defining a second mask ~~(65)~~ on said substrate after removing said first mask and prior to exposing said substrate to said second ionic species, said second mask comprising a pattern ~~capable of creating~~ configured to define the core, ~~in which~~ ~~the introduction of~~ the second ionic species ~~is carried out~~ being introduced through ~~this~~ said second mask.

24. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 20 ~~to~~ ~~22~~, ~~characterised in that step a)~~ further comprising ~~comprises the creation of~~ defining a mask comprising a pattern ~~capable of creating~~ configured to define the cladding and the core, ~~in which the introduction of~~ the first and second ionic species ~~is carried out though this~~ being introduced through said mask.

25. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 18 ~~to~~ ~~24~~, ~~characterised in that~~ wherein the grating is ~~obtained~~ formed during exposure of the substrate to ~~by the introduction of~~ ionic species though a mask ~~permitting~~ defining the core and/or the cladding ~~to be created~~, or formed ~~by~~ with a specific mask.

26. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 18 ~~to~~ ~~24~~, ~~characterised in that~~ wherein the grating is obtained by ~~localised~~ local heating.

27. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 18 ~~to~~ ~~24~~, ~~characterised in that~~ wherein the grating is obtained by etching ~~of~~ the substrate next to the zones of interaction.

28. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 20 ~~to~~ ~~27~~, ~~characterised in that~~ further comprising partially burying the first ionic species ~~is buried at least partially~~ before ~~step b)~~ exposing the substrate to the second ionic species and burying ~~that~~ the first and second ionic species ~~are buried~~ after ~~step b)~~ exposing the substrate to the second ionic species.

29. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 20 ~~to~~ ~~28~~, ~~characterised in that~~ further comprising burying the first ionic species and the second ionic species ~~are buried~~ after ~~step b)~~ exposing the substrate to the second ionic species.

30. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 20 ~~to~~ ~~29~~, ~~characterised in that~~ wherein at least part of the burying ~~is carried out with the application of~~ comprises applying an electrical field to the substrate.

31. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 20 ~~to~~ ~~30~~, ~~characterised in that~~ wherein at least part of the burying ~~is carried out by~~ comprises ~~re-diffusion~~ re-diffusing the first and second ionic species in an ionic bath.

32. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 20 ~~to~~ ~~31~~, ~~characterised in that all or part of~~ wherein the burying ~~is carried out by~~ includes depositing ~~at least one~~ a layer on the surface of the substrate.

33. (Currently Amended) The ~~Fabrication~~ method of ~~any of claims~~ claim 20 ~~to~~ ~~32~~, ~~characterised in that~~ wherein the first ionic species and/or the second ionic species are introduced with the application of an electrical field.